

AMENDMENTS TO THE SPECIFICATION

In the specification in the section DETAILED DESCRIPTION OF THE INVENTION, please delete the paragraph [0027] as shown with strike-through and substitute with the amended paragraph [0028] presented below immediately after the strike-through version.

~~The invention relates to scientific findings of the surface plasmon resonance (SPR)-enhanced interaction between metal nanoparticles and nearby molecules, which were published in few scientific reports (M. Kerker, "Optics of colloid silver", *J. Colloid Interface Sci.* 105, 298 (1985); Lakowicz et al, "Intrinsic fluorescence from DNA can be enhanced by metallic particles", *Biochem. Biophys. Res. Comm.* 286, 875 (2001); Gryczynski et al., "Multiphoton excitation of fluorescence near metallic particles: enhanced and localized excitation", *J. Phys. Chem. B*, 106, 2191 (2002)). In these reports, researchers used the fluorophores (mostly organic laser dyes) to visualize or test the SPR-enhanced interactions. Their studies show that the fluorescence intensity of the fluorophores located nearby metal nanoparticles can be enhanced by a factor as high as $\sim 10^4$ with one-photon mode of excitation and $\sim 10^8$ with two-photon mode of excitation, and Raman signal for fluorophores which are in contact with metal nanoparticle can be enhanced by $\sim 10^{14}$ (M. Moskovits: *Rev. Mod. Phys.* 57, 783 (1985); T.L. Haslett, L. Tay, M. Moskovits: *J. Chem. Phys.* 113, 1641 (2000), and references therein; K. Kneipp, Y. Wang, H. Kneipp, L.T. Perelman, I. Itzkan, R.R. Dasari, M.S. Feld: *Phys. Rev. Lett.* 78, 1667 (1997); Gryczynski et al., "Multiphoton excitation of fluorescence near metallic particles: enhanced and localized excitation", *J. Phys. Chem. B*, 106, 2191 (2002)). The observed SPR-enhanced interaction of metal nanoparticles with fluorophores was also~~

~~associated with intense decomposition of fluorophores when fluorophores where at a distance of 20 nm or less from metal nanoparticles (Ditlbacher H. et al., *Appl. Phys. B* 73, 373-377 (2001)).~~

This invention ~~expands the above scientific findings to~~ provides a new method of ~~[[a]] surface plasmon resonance enhanced interaction~~ interactions of metal nanoparticles with biological substances that leads to increased biochemical/biophysical modifications or destruction of biological substances. In the proposed method, a biological substance located within plasmon fields of a plasmon excited metal nanoparticle undergoes enhanced interactions with the plasmon fields and/or with the metal nanoparticle. These plasmon enhanced interactions are few orders of magnitude higher than it would be interactions of the biological substance with a non-plasmon excited metal nanoparticle, and the biochemical/biophysical modifications or destruction of the biological substance can occur without the direct contact of the biological substance with the metal nanoparticle. Biological substances considered in this invention are: a biomolecule, bacteria, living tissue, cells, virus, human body, animal body, and other living biological species.